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LXXX. *An Account of a remarkable Agitation of the Sea, July 28, 1761, and of two Thunder-Storms in Cornwall: In a Letter to the Rev. Thomas Birch, D. D. Secretary to the Royal Society, from the Rev. William Borlase, M. A. F. R. S.*

Reverend Sir

Ludgvan, March 8, 1762.

Read April 1,
1762

ON Tuesday, the 28th of last July; the day quite calm, the sky lowring and cloudy, thunder at times all the day, the tide in Mount's-bay was considerably agitated. Between the towns of Penzance and Marazion, there is a strand, or level of sands, on which there is good travelling, when the tide is out; but when the tide is full, the sands are covered. At ten A. M. the driver of a plough, belonging to William Tregennin, laden with tin, for Penzance coinage, driving, as usual, on the then bare sands, found himself and the plough, on a sudden, surrounded by the sea. The horses were frightened, and plunged, the oxen stood still, the driver and his boy could neither recollect how they should help the cattle, or secure themselves: several people saw them at a distance, but dared not to approach; and, in a few minutes, when all was given up for lost, the sea retired, and left them, safely to pursue their journey. I came to Chandour, a small village at the western extremity of these fands, about eleven, and found several persons standing on the shore, intent upon the several

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extraordinary fluxes and refluxes of the tide at that time, and was informed, that, at the first agitation, when the plough was surprized by the sea, the water must have risen about six feet perpendicular. During my stay, I observed the sea flowing and retreating several times, and, by my watch, it was seven minutes flowing, (the water rising about a foot and half, or somewhat more) and the like time nearly in retiring. About half hour past eleven, I was obliged to move homewards, and, as I passed by the brim of the water, observed, that the sea advanced and retired, and was not settled; but the alterations were then small, and scarce perceptible. On the same day, and time, (it being the beginning of the fishery season) a seine-net was shot for pilchards; but, by the sudden surge of the sea, the net broke, and the fishermen were glad to take in their net, without fish. In the more western parts of this bay, the agitations were very apparent; and, by the Papers, the like agitations were felt in the harbours of Falmouth, Fawy, and Plymouth.

Lightning. On the same day, about eight o'clock P.M. the wind at east, Farenheit's thermometer at 64, the atmosphere continuing in the same calm, sultry, and grumbling temperature, the fiercest lightning, accompanied in the same moment with a thunderclap, broke over Ludgvan church; it came from the north-west, and fell upon the southern pinnacle of the east-side of the church-tower. The pinnacle was fifteen feet high from the battlements of the tower, and consisted of a pedestal carved into square compartments; a pyramid, or spire, with knobs at the angles, and on the top a cross, with a molded socket-stone to support it;

it : the cross was broken, the socket-stone dashed in pieces, the stones belonging to the spire all thrown down, and one large one of the pedestal moved from its bed several inches ; the heavier stones, thrown to the south-east about five yards, crushed the western side of the church-porch, the smaller fragments dispersed in the church-yard, made a breach in the church-roof ; the roofing of the tower shaken and shattered ; the wheel of the little bell broke. Part of the same flash fell lower, and, on the ground adjoining to the north-west angle of the tower, made two furrows, like that of a plough-share, (the direction north-west) whence turning round towards the west, and forcing in a plank, which filled the arch over the western door, about fifteen feet, against a partition, it entered the lower belfry. The folding doors leading into the church are of massive oak, and were shut ; but there was a triangular hole near the top, about the space of an inch diameter, through which the lightning entered the church, leaving its track on the plaster, about a foot and half long, as if it had been rasped by a rough rounded file : hence it proceeded up the nave of the church to the pulpit, which it unjointed, splitting the upper parts, tearing up the steps, rending the minister's pew, and leaving its sulphurous smoky tracks in the crannies, as it came through ; all the edge-mouldings of the canopy were tore to pieces, and scattered round the church ; the church prayer-book, which lay on the minister's desk, was blown backwards, and thrown upon the floor, and the pew covered with dust and plaster fragments ; hence it proceeded up to the altar, splintered the north table of commandments, and brought

it

it down upon the pavement; rifled the moldings of the wainscot under the chancel window, and, without breaking one pane of glass, forced its way (as is imagined) through a cranny of the wall under the north corner of that window, which seems to have been its last effort, as it passed up through the nave. In the north isle, there was no material damage, the detached side-shootings of this flash only rifling the plaster in several places, and escaping through a hole in a pane of glass, like that of a musket-ball. But, at the same time, that the lightning broke into the church from the lower belfry, another part of the same flash, chiefly through the window over the tower door, forced into the school-house belfry, tore and dispersed the copy-books of the scholars, (not long before dismissed) which lay on the school table; and by that part, which rose against the north wall of the tower, the chamber over the school-house (though all of square granet, and excellent masonry) was cracked for twelve feet high, the chink between one and six inches wide, and several stones were moved outwards from the wall. It is observable, that one of the four pinnacles of this tower has on its top a large spill of iron, on which there is a brass weather-cock: this pinnacle, however, was not touched, neither was any life or limb lost. A man then in the church-yard, somewhat to the north of the tower, was thrown violently against the tower wall, but not much bruised; some others near by were blown off their legs; a smith, then shoeing the horses in my stable-yard, was thrown flat on his face. Being then writing against a southern window, the lightning and thunder was violent enough, (being much more so than any I ever

ever remember to have met with) either to drive my chair back three feet, or else I started so much back at the light and noise, I am uncertain which ; all I could recollect was, that the room, at once, was full of flame, and immediately not so ; and that I was moved three feet from the table, how, I could not tell. A little head-ach was the only ill consequence.

More furious still was the thunder-storm, on the ^{Thunder-} 11th of January last, which fell upon the church and ^{storm at} tower of Breâg, about seven miles east of this place, ^{Breâg,} Jan. 11, of which I was favoured with the following account, ^{1762.} in a letter, dated February 10, from the Reverend Mr. Henry Ustick, vicar of that parish.

“ On Monday, the 11th of last month, about a quarter past four P. M. the barometer as low as 28, the wind blowing hard at south-west, on a sudden it grew very dark, and a shower of hail, not remarkably large, followed, accompanied with the fiercest flash of lightning, and the most violent explosion of thunder, I ever saw or heard. The lightning and thunder were almost instantaneous ; so that if the motion of sound be about a thousand feet in a second, the distance of the cloud from us could be but very little. My servant, who happened at that time to be in the fields, was struck to his knees, but felt nothing like an electrical shock, ran in immediately, in a great fright ; said, he saw the lightning fall on the tower, and something like a black smoke arise from it, and believed, that one of the pinnacles was thrown down. I went to the church-town, [about two hundred paces from the vicarage-house] to examine what damage had

“ been done, when I found the havock to be past
 “ description or conception. The western side of the
 “ tower was rent from almost the top to the bottom,
 “ the crack not in a strait line, but irregular, and
 “ from one to five inches wide; the south-east pin-
 “ nacle split into a thousand pieces, and scattered all
 “ over the spacious church-yard and church-town;
 “ two of the battlements on the western, and four on
 “ the eastern and southern sides of the tower struck
 “ off; and every one of the windows of the church,
 “ (excepting one in the jet-out north-isle) shattered
 “ to pieces, presented a most dismal prospect. On
 “ entering the church, I felt a sultry heat; but there
 “ was no sulphureous smell, though a person present
 “ said, that he had very plainly perceived one just be-
 “ fore.

“ 'Tis difficult to say in what direction the force
 “ proceeded; I apprehend it must have penetrated
 “ the tower, through the middle of the arch over
 “ the belfry door, which, though locked and strongly
 “ bolted, was burst open; the center of the arch is
 “ divided, and the top stone of that remarkably fine
 “ one over the window cracked athwart: the light-
 “ ning must therefore have passed directly up the
 “ tower, through the midst of the wall, the outside
 “ of which has the exact appearance of being bat-
 “ tered by cannon-ball, and is quite bulged out be-
 “ tween the first and second ring. Had not this been
 “ the case, how could such a large quantity of entire
 “ stones, and fragments of others of a prodigious size,
 “ be forced out of their places, as well on the inside
 “ as the outside of the wall?

“ The

" The stones of the pinnacles and battlements
 " were scattered in all directions ; one, of at least
 " a hundred and fifty pounds weight, fell on the top
 " of a house, about sixty yards to the south, another
 " was cast full four hundred yards to the north, one
 " very large one to the south-east of the church ; a
 " long stone, which served for a bench, adjoining to
 " the south stile, was cracked cross-ways, and one
 " end turned quite upside down. When the light-
 " ning entered the church, its direction seemed to
 " be partly north-east, and partly south-east, diverg-
 " ing from the belfry ; for, on each side, the top of the
 " wall of my chancel is broken so exactly alike, as
 " if it had been done on purpose ; but its force was so
 " spent, or the resistance it met with so great, that it
 " could not penetrate, though it shattered the glass to
 " bits. With regard to the eastern-end windows of
 " the north and south isles, the case was different ;
 " there the glass not only suffered, but the monions
 " were greatly damaged, and the walls cracked on
 " each side, in many places, the cracks from one to
 " four inches wide ; below the south window, the
 " lightning not only forced its way out in the south-
 " east direction, but entered perpendicularly, and
 " passed through the wall, about two feet below.
 " 'Tis remarkable, that about the middle of the
 " south isle, over one of the arches, a round hole,
 " of about two inches diameter, was pierced through
 " the carved oak, directly under the plaster, and a
 " piece of the main foil, of more than a foot in
 " length, struck off, and part of it burnt to a char-
 " coal. The eastern part of the tower is likewise
 Uuu 2 " somewhat

" somewhat damaged, a small crack appearing on
 " the inside of the wall. Two of the standing pin-
 " nacles are much damaged, and part of the cross
 " of the north-western one is struck off; the corners
 " of the tower are very firm, so are the buttresses,
 " excepting the southermost one of the west end,
 " some stones of which are moved out of their places.
 " Thus, Sir, you find, that the beauty of our ad-
 " mired tower is quite destroyed, never more, I fear,
 " to be retrieved, as the top of it, as far down as the
 " leads, must be entirely taken off, and the western
 " side is condemned from top to bottom.

" It was very providential, that no fatal accident
 " happened to any person, in so populous a place,
 " during the whole melancholy affair; several in-
 " deed perceived a kind of electrical shock; and
 " one woman was struck quite backward, as she stood
 " just within her door."

So far Mr. Ustick.

How deplorable the consequences of such blasts of lightning, which swept the whole churches, would have been, if they had happened (where there are numerous congregations) during the time of divine service, is obvious, and well worthy our attention. It is much less worth our notice, and yet not wholly below observation, that these two towers of Breâg and Ludgvan, which have thus remarkably suffered by lightning in about six months, are the strongest and best built towers in this neighbourhood; that tradition holds them to have been built in the same age, if not by the same hand; that they were built in the same

style, and in a manner more elegant than common, is still apparent.

I remain,

S I R,

Your most obedient

and obliged

humble servant,

William Borlase.

LXXXI. *Extract of a Letter from John Huxham, M. D. F. R. S. to William Watson, M. D. F. R. S. dated at Plymouth, February 5, 1762, relating to two remarkable Cases in Surgery.*

Read April 1, 1762. **I** Have sent you inclosed two pretty remarkable cases from Mr. Thomas Adams, an ingenious and experienced surgeon at Lifkard in Cornwall. That of the *cut throat* may serve to make us somewhat more ready and resolute in the operation of bronchotomy, when necessary. How right Mr. Adams may be in his conjecture of the effects of the *sheep-shears*, I will not say; but, from many well known experiments, particularly that of Mr. Franklin, it seems not altogether improbable.

June